

WHAT IS CLAIMED IS:

5 1. A polymeric balloon having a wall with an interior surface defining at least in part an internal chamber and a plurality of spaced apart layers of remotely imageable materials on the interior balloon surface or within a portion of the balloon wall.

2. The polymeric balloon of claim 1 wherein the spaced apart layers facilitate articulation between adjacent spaced apart layers.

10 3. The polymeric balloon of claim 1 wherein the spaced apart layers have a thickness of about 0.0005 inch to about 0.01 inch.

4. The polymeric balloon of claim 1 wherein the spaced apart layers have a thickness of about 0.001 inch to about 0.003 inch.

5. The polymeric balloon of claim 1 wherein the wall of the balloon forms a working section of cylindrical shape.

15 6. The polymeric balloon of claim 4 wherein a proximally tapered section extends from the proximal end of the working section.

7. The polymeric balloon of claim 4 wherein a distally tapered section extends from the distal end of the working section.

20 8. The balloon of claim 1 wherein at least one of the remotely imageable layers extend along the working length of the balloon.

9. The balloon of claim 1 wherein the wall is formed of at least two layers of polymeric material with the remotely imageable layers disposed between the two layers.

10. The balloon of claim 1 wherein the remotely imageable layers include radiopaque material.

11. The balloon of claim 1 wherein the remotely imageable layers include material imageable by magnetic resonance.

12. The balloon of claim 1 wherein at least one imageable layer has both radiopaque agents and MRI imageable agents.

13. The balloon of claim 1 wherein the spacing between imageable layers is at least 0.0001 inch.

14. The balloon of claim 1 wherein the spacing between imageable layers is at least 0.005 inch.

15. A balloon catheter assembly for stent delivery comprising

- a) a catheter shaft having at least one lumen;
- b) a polymeric balloon which is disposed about and secured to a distal portion of the catheter shaft, which has a wall with an interior surface defining at least in part an internal chamber and which has a plurality of spaced apart layers of remotely imageable materials on the interior balloon surface or within a portion of the balloon wall; and

c) a stent having a proximal end and a distal end disposed about the balloon.

16. A balloon catheter comprising

a) a catheter shaft having at least one lumen; and

b) a polymeric balloon which is disposed about and secured to a distal portion of the catheter shaft and which includes a working section having at least two adjacent wall segments with each segment having spaced apart remotely imageable layers.

17. The balloon catheter of claim 16 wherein the working section of the balloon has a deflated single wall thickness of about 0.001 inches to about .0125 inches.